

# Lineage Fixing Code

July 28, 2015

## 1 Files and Dependencies

The code files needed for proper execution of this code are:

CheckNuclei.m

FixLineage.m

ginput\_red.m

iIndex.m

In addition, we will need all of the code from LivemRNATracking, on HernanDev of Github.

In the long run, we will try to remove some dependencies, notably ginput\_red.m and iIndex.m. We also want to introduce a speed mode in which we don't need FixLineage.m

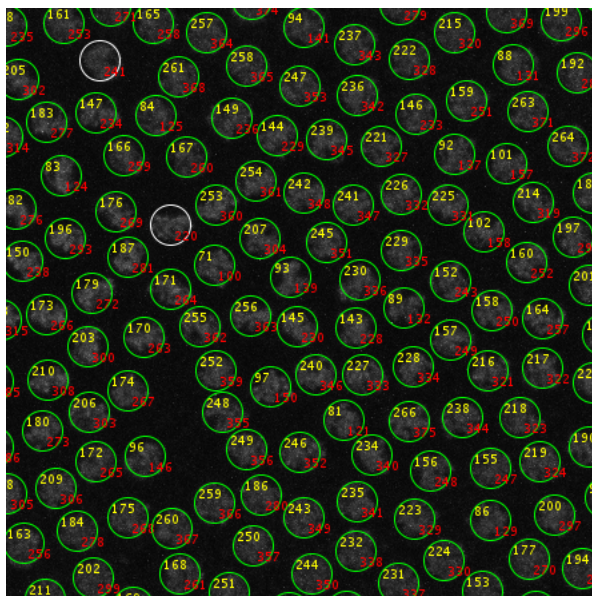
In addition, we need the lineage file, and all the images in tif format in the PreProcessed path. These files have to be in the standard format as described in LivemRNA Tracking.

## 2 Running the code

To run the code, store the Prefix from ExportDataForFISH and run the following command on the terminal line:

CheckNuclei(Prefix); The command above will take time ( 1 min), and then you will see the GUI as follows:

Next, you will see an image with lots of white and green nuclei and labels as follows:



Here a green nucleus is a nucleus with one or two assigned daughters. The text in red on the lower right is its nucleus number, and the number on the left top is its family number. Family number is the same for a parent and its two daughters. But note that families are only for one generation.

Here you have the following options:

q or , : Move 1 frame backward

w or . : Move 1 frame forward

r : Move 1 NC backward

t : Move 1 NC forward

s : Save and keep tracking

x : Save and quit

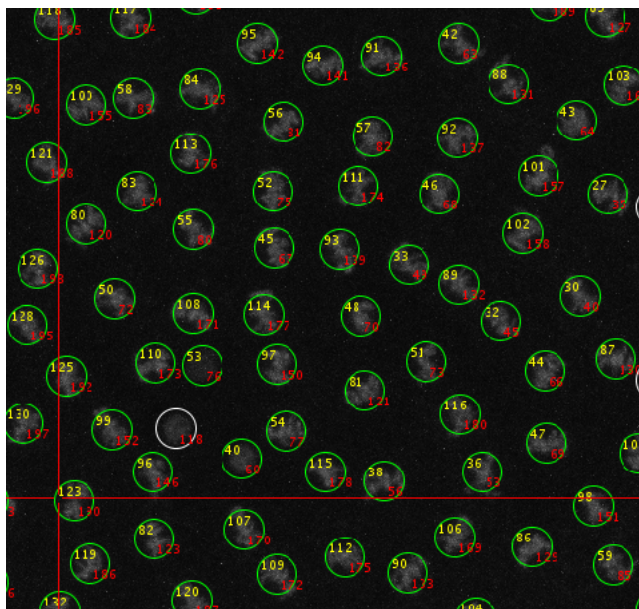
d : Enter delete mode. left or right mouseclick: Curate Nuclei

## 2.1 Delete Mode

Click on any nucleus you want deleted from the structure, and you shall have it deleted.

## 2.2 Curation Mode

If you do either a left or a right mouseclick, you will see a red cross-hair asking you to select a nucleus as follows:



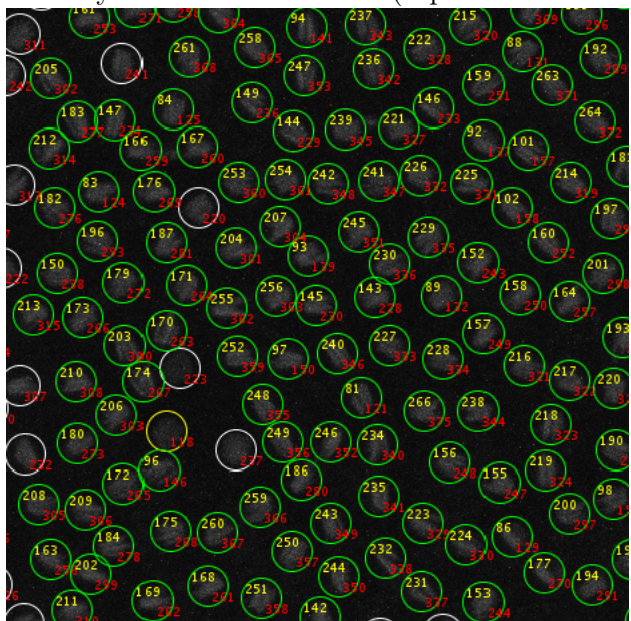
The nucleus you select with the crosshairs is now your parent nucleus. Now you have two options:

### 2.2.1 Reassign Mode

z to reassign nucleus number to the nucleus. If you do so, you will be asked to input a number which will now be that nucleus' number.

### 2.2.2 Mitosis Mode

If you click on the frame, you enter Mitosis mode. Now, the parent you had selected will be marked with a yellow circle as follows (if present in the frame). The other text markers remain.



Now your options are: q or , : Move 1 frame backward  
w or . : Move 1 frame forward

n : Choose that there are no nuclei

left or right mouseclick: Start selecting nucleus

If you mouseclick, you will have the cross-hairs again as you did earlier, but for two nuclei. Select the two daughters, and if there is only one daughter click on the same daughter twice.